NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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No. S-00-22 October 6, 2000

"Short and Long-term Prospects for U.S.-Japan Nuclear Cooperation"

Remarks by Chairman Richard A. Meserve at the

U.S.-Japan Workshop on Nuclear Energy
Decatur House, Washington, DC, October 5, 2000

Thank you, Mr. Chairman. I am pleased to participate in the U.S.-Japan Workshop on Nuclear Energy. This is the first time I have had the pleasure of addressing members of the Santa Fe Energy Seminar hosted by Washington Policy and Analysis. However, as I look at the participants in the audience I see many whom I had the pleasure of meeting at the Japan Atomic Industrial Forum conference held last April in Tokyo, and others with whom I have worked in the United States.

I will begin my talk by addressing the state of the nuclear industry and regulation in the United States. I will then turn to our collaborations with Japan and what we might be able to do in the future, as the global nuclear enterprise evolves.

The Dynamic Environment in the United States

In the United States -- and to a great extent also in Japan -- the regulatory environment is now extraordinarily dynamic. We are in a period of transition in several dimensions, probably experiencing more rapid change now than at a time since the beginning of the almost 50-year history of civilian nuclear power.

While focusing on today's regulatory environment is essential, the rate of change we are experiencing strongly suggests that the future will continue to impose increasing demands on us all. I firmly believe that we, government and industry, have an important obligation to prepare for the future to which today's changes are moving us.

I do not pretend to be able to predict the future with certainty. Who would feel secure in forecasting in light of the changes of the past few years? Nonetheless, we all know of issues that will surely be with us in

the long run if we do not act to resolve them in the interim. I believe that together we can positively affect change so that the regulatory environment of tomorrow is even better suited to assure excellence in nuclear safety than that of today.

Economic Regulation

The most important agent of change in the U.S. today is the price deregulation of electricity generation. Engineering and technology developments of the past two decades have made it possible to decouple electricity generation from transmission and delivery, so that it is no longer technologically necessary to include generation *per se* as part of the public utility function.

In the past few years, more and more states have initiated actions to deregulate electricity prices. One consequence has been a rapid restructuring of the U.S. nuclear industry, characterized by mergers, consolidation, joint operating agreements, and other changes. We have also seen a steadily increasing interest in nuclear plant license renewal. Whereas only a few years ago, the conventional wisdom was that nuclear power was an industry with limited, if any, future in this country, industry observers now speak of the future in optimistic tones. Only a few years ago, the NRC expected most, if not all, plants would be decommissioned at or before the end of their 40-year license terms. Now we hear estimates from industry leaders that licensees of up to 85 percent of U.S. plants will seek extension of their licenses. As a result, the existing fleet of nuclear plants may contribute to our energy security well into this century. Industry leaders are also beginning to consider strategies for the development of new plants, a thought that was almost unthinkable only a few years ago. In short, we are seeing a publicly unnoticed renaissance in nuclear power in the U.S.

Safety Regulation

What else has changed? The U.S. approach to safety regulation. Our national economic system is based on free, open markets that are moderated by government to achieve social objectives that are not valued by markets. Markets do not ordinarily value public health and safety or environmental protection, and the generation of electricity is increasingly no longer the responsibility of a public utility. Therefore, the government will continue to regulate nuclear activities to achieve external social objectives.

Government can, however, take advantage of what has been learned over the past four decades about nuclear operations and safety to do a more efficient job of regulation. And that is what we are trying to do.

As the industry has evolved, we have accumulated data and developed new tools for analyzing data so that today we have a much better understanding of the nature and magnitude of the risks to public health and safety that arise from nuclear operations. We are applying that accumulated understanding to inform our activities, with the goal of focusing attention on specific features commensurate with the risks that they pose. Government regulation always comes at a cost, and ideally those costs should only burden markets to the extent of the benefits that society derives as a consequence.

This aspect of the current dynamic environment is NRC's own creation. Under the existing regulatory regime, the U.S. nuclear industry has accumulated an impressive safety record. But keeping our regulatory system up to date with technical developments serves to meet a fundamental obligation to the public, to

industry, and to government. It is for this reason that we have started the significant and necessary task of reform. We are seeking to examine our regulatory system–much of which was enacted on a deterministic basis in the early days of nuclear power–in order to adopt new regulations based on risk insights.

Let me be more specific. In the early 1990s, the Commission determined that the science of quantitative risk assessment had matured sufficiently to permit the use of probabilistic safety assessments in "risk-informing" our regulations. By "risk-informed," we mean that risk insights are considered, along with more traditional deterministic assessments, in evaluating licensee performance and proposed actions, such as in-service inspection and technical specification changes. We are also making our regulations more "performance-based," so that licensees are given more latitude in how they meet regulatory requirements. We have already overhauled our plant oversight process, using performance indicators along with risk-informed inspection techniques, to provide a better focus on safety. And other regulatory requirements, such as those governing special treatment requirements -- requirements imposed on nuclear equipment that go beyond commercial standards -- are now under revision. We are embarked on a decade of work to bring our regulations up to date with the best current knowledge.

The NRC'S Approach to Nuclear Safety Assurance

In order to provide a foundation for our regulatory activities, we have established a set of four strategic objectives for our regulatory program:

- to maintain safety;
- to increase effectiveness and efficiency;
- to reduce unnecessary regulatory burden; and
- to increase public confidence.

The objective of maintaining safety is and must remain our most fundamental goal. But we are hopeful that the reform of our regulatory system will enable us to maintain our focus on safety, while simultaneously increasing effectiveness and efficiency and reducing increasing burden. With the benefit of risk insights we can determine which parts of our regulatory system should be enhanced or which should be reduced or eliminated.

The fourth objective, to increase public confidence, may be the most challenging task of all. I cannot stress too strongly the need for all of us to communicate effectively with the national and international public about nuclear technology. It is essential that our regulatory actions both be fair and be perceived as fair. A key to achieving this perception of fairness is to be open and accessible. Initiatives we have undertaken to strengthen public confidence include establishing a website through which the public may get information about our activities, and increasing interactions at all levels with our "stakeholders." These interactions include public meetings, workshops, and other outreach efforts.

To summarize, we believe our efforts to risk-inform our regulations will serve to focus our regulatory activities on the issues of highest significance for safety, while also satisfying our other strategic objectives. In this way, we expect to meet the challenge of the changing economic environment for nuclear power in the U.S. and to assure that our licensees maintain a vigilant approach to nuclear safety.

We could not accomplish our objectives, however, without the participation of our international partners. As each of you is well aware, nuclear technology is international in scope. Over 400 nuclear power

plants are now operating in more than thirty nations, supplying about one-sixth of the world's electricity. In several countries, nuclear power supplies over 70% of domestic electricity production. New nuclear capacity is planned or is being considered in a range of nations: some with established civil nuclear programs, such as Japan, France and the Republic of Korea; some with mid-size programs, such as India and China; and some that do not currently have nuclear power, such as Bangladesh, and Vietnam. Regulation, construction, and ownership all have international components. Regulators leverage research money through joint international activities. Construction consortia, drawn from multiple countries, build the plants. And, foreign ownership of plants, while often limited by national laws, is becoming more common.

Whether or not to use nuclear power; the number, size, and location of the plants; and the methods used both by plant operators and regulatory agencies to ensure their safe operation and public protection are matters that each Nation must decide for itself. But there is a vital need for international cooperation to ensure that safety is *the* fundamental consideration in the use of nuclear technology. As we have all experienced, a nuclear accident anywhere has consequences that transcend national borders. If nuclear power is to continue to make a significant contribution to the world's energy supply in the coming century, we -- utilities, vendors, researchers, regulators, and policy makers -- must all work together to ensure that those who use the technology have safety as their primary goal, and that they have the necessary resources and technical capabilities to achieve that goal.

Prospects for U.S.-Japan Nuclear Cooperation

This leads me to answer the question implicit in the title of this segment of the Workshop, "What are the short and long term prospects for U.S.-Japan nuclear cooperation?" In my view the prospects are excellent, and are visible in every aspect of our respective nuclear programs. The U.S. and Japan have, and will continue to work effectively to enhance nuclear safety at home and abroad through international and national legal frameworks, regulatory cooperation, and commercial enterprise.

Our governments already coordinate closely in connection with the international legal instruments that provide the basis for cooperative programs. For example, the United States and Japan acted together on the recently negotiated conventions on nuclear safety, liability, and the safety of spent fuel management and the safety of radioactive waste management. These instruments effectively serve to acknowledge that, although the decision to employ nuclear power is a sovereign decision, there are legitimate transnational interests in assuring that the technology is used in safe and responsible manner. The cooperative programs which are enabled by these legal instruments are, in turn, implemented through an interconnected web of multilateral nuclear safety organizations and bilateral activities in which both our countries are actively engaged.

Cooperation between our national regulatory agencies has grown and, in my view, should continue and expand. The exchange of information between the United States and Japan on operating experiences and regulatory issues helps to promote good safety practices and to discourage poor ones. I am firmly committed to continuing the NRC's active role in cooperative exchanges with Japan. NRC staff members participate with their Japanese colleagues in international conferences, such as professional society meetings and on many international working groups, such as those organized by the International Atomic Energy Agency and the Nuclear Energy Agency. On the Commission level, my fellow Commissioners and I have met with our Japanese regulatory and industry counterparts to discuss perspectives on nuclear regulation and ways in which to promote adherence to the highest degree of safety assurance. The NRC's Office of International Programs coordinates technical information exchange agreements, including an active program with Japan. One of the

most valuable methods for sharing information and experiences is through the assignment of staff to other organizations, and the NRC is proud to have hosted many regulatory staff from the Japanese Ministry of International Trade and Industry and from the Science and Technology Agency. We have also sent our regulatory staff to Japan to learn from the valuable experiences of our international colleagues.

The nuclear industry also clearly recognizes the need for and value of international cooperation and technical information exchange, and hosts forums to promote free and open discussion of research, operational experiences, emerging technical and safety issues, and other related topics. As the first country to build and operate an Advanced Boiling Water Reactor (ABWR), which is a product of a cooperative venture between Japan's Toshiba and Hitachi and GE Nuclear Energy of the United States, Japan is a leader among nations in establishing the environment for the future of nuclear power generation. In fact, leaders of the industry in the U.S. have been quoted recently as looking toward the experience with the ABWR in Japan as providing a basis for eventual development of new plants in the U.S. In April I had the opportunity to visit the ABWR plants at Kashiwazaki-Kariwa, and was impressed with what I saw.

One other subject in the area of U.S.-Japan collaboration deserves special attention: the role of our cooperative research programs. The contributions of our international research partners are essential to the vitality of the NRC's research program. One unfortunate aspect of the changing environment -- in the United States, in Japan, and almost everywhere -- is the tightening of the available budget, in general, and of the research budget in particular. However, the need for research continues. It provides the technical foundation for new regulatory initiatives, such as risk-informed regulation. It positions the NRC and our regulatory counterparts to deal with new technology and new industry initiatives. Research enables the development of state-of-the-art analytical tools and the ability to respond to the emerging technical and safety issues that arise as our operating reactors grow older.

While I could not possibly list all of the international cooperative programs in which the NRC takes part, among the most prominent is our very valuable collaboration with the Japan Atomic Energy Research Institute (JAERI). One example is the confirmatory testing program conducted in the ROSA-Large Scale Test Facility at JAERI's Tokai laboratory for the NRC certification of Westinghouse's AP600 design. This extensive series of tests, simulating design-basis accidents and transients, as well as multiple-failure scenarios, provided valuable data for the validation of the NRC's thermal-hydraulic analysis codes, and provided the NRC staff with insights into the way in which the AP600's unique passive safety systems would behave during such events. Another program of note is the ongoing testing program on high-burnup fuel in JAERI's Nuclear Safety Research Reactor. During my April trip to Japan I visited the JAERI facilities and observed tangible evidence of the tremendous value of our international cooperation with Japan.

A Lesson Drawn: Embrace and Prepare for Change

What lessons can we derive from this brief sketch of the current dynamic nuclear environment? Perhaps the most fundamental is that change is an inevitable consequence of current activity. As we go through life we gain experience and our universe changes. A Greek philosopher, once wrote that "you [can] not step twice into the same rivers; for other waters are ever flowing on to you."[1] We cannot ignore change.

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[1]Heraclitus, as quoted by Hipppocrates in On the Universe.

It is human nature to seek to avoid change, and organizational settings exacerbate that tendency. A mind set against change exists in all organizations, whether in the United States or in any country around the world. Our responsibility, however, is to embrace change, to engender the attitude among our colleagues and the public that change offers opportunities for doing our work better, and to prepare for the future.

That means that we -- all of us -- must accept the responsibilities not only of maintaining our institutional capacities to meet current needs, but also of building the capabilities to meet the changing needs that will be thrust upon us. The NRC not only must be effective and efficient as a regulator, but also must be an agile agency, dynamically responsive to changes in the communities that it regulates and anticipating those communities' future needs. The same holds true for Japan's regulatory institutions. And, each can accomplish its goals more readily if we help each other through our cooperative activities.

It is for this reason that I have sought to provide the NRC's perspectives -- and my own -- of the value of U.S.-Japan nuclear safety cooperation. We share a common obligation to assure the responsible use of nuclear technology. Working together, we can meet that obligation.

Thank you.